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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,145	02/13/2006	Masatoshi Kuwajima	OGW0418	7755

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EXAMINER	
FISCHER, JUSTIN R	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
08/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,145	KUWAJIMA ET AL.	
	Examiner	Art Unit	
	Justin R. Fischer	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *032808*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 31, 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reuter (EP 624667, of record). As best depicted in Figure 1, Reuter teaches a pneumatic tire construction comprising a plurality of working belt plies 15 and a radially outermost overlay (belt reinforcing layer) formed of aramid cords. The reference further teaches the general use of a reinforcement ply (e.g. an overlay ply) formed of aramid cords, wherein said cords have a stress of at least 50 N at an elongation of 3% (Page 8, Lines 27-30). Based on the general relationship between stress (load) and strain (elongation), one of ordinary skill in the art at the time of the invention would have

expected the elongation to be at least 3.5% at a load of 67 Newtons. Additionally, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed stress-strain relationship

It is further noted that the description of an overlay on Page 6, Lines 37+ is directed to a preferred embodiment- the reference is more generally directed to a reinforcing ply formed of aramid cords in which a load of at least 50N provides an elongation of 3%.

As to the axial positioning of the belt reinforcing layer, Reuter teaches that the respective ends overlap the ends of the radially outermost belt layer by a few millimeters (Page 3, Lines 43-45). One of ordinary skill in the art at the time of the invention would have recognized such language as including embodiments having an overlap of at least 15 millimeters and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed degree of overlap. It is emphasized that the language "a few mm" is relative to the size of the tire. For example, 15 mm would be viewed differently in a tire having a tread width of 200 mm as compared to a tire having a tread width of 600 mm. In this instance, Reuter is broadly directed to a pneumatic tire construction and one of ordinary skill in the art at the time of the invention would have readily appreciated tire constructions in which 15 mm constituted a "few mm" (disclosure of Reuter is relative to the specific tire size).

Lastly, with respect to the independent claim, the reference generally teaches that the ends of overlay extend a few millimeters beyond the ends of the underlying belt plies. Furthermore, based on the curvature of the crown region, it appears that the

diameter of the overlay ends is less than the diameter of the overlay at the equatorial plane of the tire. It is evident that the respective outer diameters are a function of the specific tire being manufactured (absolute value of diameters). Thus, a plurality of tire constructions in Reuter would satisfy the broad range of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range. It is further noted that the "overlap" described by Reuter is an absolute dimension and is not a function of the specific tire size (diameter relationship would be greater in smaller tires).

With respect to claim 5, the claim is directed to the method of forming the belt reinforcement layer and thus does not further define the structure of the claimed tire construction. It is further noted that Reuter discloses a method in which the belt reinforcement layer is formed by spiral winding (Page 3, Lines 43+).

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai (JP 2003002015, of record) and further in view of Reuter. As best depicted in the figures, Hirai discloses a pneumatic tire construction having a plurality of belt layers 6 and a radially outermost belt reinforcement layer 7, wherein said belt reinforcement layer overhangs the end of the underlying belt layers by a distance of at least 10 mm. The reference further suggests the use of a wide variety of reinforcing materials for the belt reinforcement layer, including aramid reifnrocing cords (Paragraph 16). While the reference fails to expressly describe any specific aramid cord, the claimed aramid cord is recognized as providing good high speed properties, low noise emission, and low thickness (Page 2, Lines 25-27). As such, one of ordinary skill in the art at the time of

the invention would have found it obvious to form the belt reinforcement layer of Hirai with the reinforcing elements of Reuter.

Lastly, with respect to the independent claim, as noted above, the amount of overhang can be as small as 10 millimeters, which falls in the middle of the claimed range between 5 and 20 millimeters. In this instance, Hirai is broadly directed to a pneumatic tire construction and it is evident that the respective outer diameters are a function of the specific tire being manufactured. Thus, it is evident that a plurality of tire constructions in Hirai would satisfy the broad range of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range. It is further noted that the "overhang" described by Hirai is an absolute dimension and is not a function of the specific tire size (it is just required that the reinforcement layer reinforces the shoulder portion). Lastly, it is noted that an overhang of 10 mm suggests that the radial separation between the respective ends is less than 10 mm- such a separation suggests that the claimed radial separation (measured at tread center, not belt end) would have falling between 6.5% and 13% of the diameter at the end of the overhang.

Regarding claim 5, the claim is directed to the method of forming the belt reinforcement layer and thus does not further define the structure of the claimed tire construction. It is further noted that Hirai discloses a method in which the belt reinforcement layer is formed by winding strips (Page 20, Lines 5-10).

5. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reuter (EP 412,928) and further in view of Reuter (US 6,799,618, newly cited). Reuter

'928 substantially teaches the claimed tire construction, including an overlay ply formed of high modulus, aramid fiber cords. The reference, however, fails to expressly disclose the stress-strain relationship of the high modulus, aramid fiber cord. Reuter '618 (Column 1, Lines 44+), on the other hand, describes the tire construction of Reuter '928 and provides a graph having the stress-strain relationship for such an overlay ply formed solely of aramid cords. In such an instance, an elongation slightly greater than 4% is obtained by the claimed stress levels. A fair reading of each of the Reuter references suggests that the aramid fiber cord described by Reuter '618 represents the high modulus, aramid fiber cord used in the tire construction of Reuter '928.

Reuter '928 further teaches that the overlay structure overlaps the lateral ends of the radially outermost belt layer by few mm (Page 3, Lines 36+). One of ordinary skill in the art at the time of the invention would have recognized such language as including embodiments having an overlap of at least 15 millimeters and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed degree of overlap. It is emphasized that the language "a few mm" is relative to the size of the tire. For example, 15 mm would be viewed differently in a tire having a tread width of 200 mm as compared to a tire having a tread width of 600 mm. In this instance, Reuter is broadly directed to a pneumatic tire construction and one of ordinary skill in the art at the time of the invention would have readily appreciated tire constructions in which 15 mm constituted a "few mm" (disclosure of Reuter is relative to the specific tire size).

Lastly, with respect to the independent claim, the reference generally teaches that the ends of overlay extend a few millimeters beyond the ends of the underlying belt plies. Furthermore, based on the curvature of the crown region, it appears that the diameter of the overlay ends is less than the diameter of the overlay at the equatorial plane of the tire. It is evident that the respective outer diameters are a function of the specific tire being manufactured (absolute value of diameters). Thus, a plurality of tire constructions in Reuter would satisfy the broad range of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range. It is further noted that the "overlap" described by Reuter is an absolute dimension and is not a function of the specific tire size (diameter relationship would be greater in smaller tires).

With respect to claim 5, the claim is directed to the method of forming the belt reinforcement layer and thus does not further define the structure of the claimed tire construction. It is further noted that Reuter discloses a method in which the belt reinforcement layer is formed by spiral winding.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Reuter '667, (b) Hirai and Reuter '667, or (c) Reuter '928 and Reuter '618 as applied in claim 1 above and further in view of Pogue (DE 4209817, of record). As detailed above, Reuter'667 and Reuter '928/'618 substantially teaches the tire of the claimed invention, including a belt reinforcement layer formed of a reinforcing element having an elongation between 3.5% and 5.5% at a loading of 67 N. The references, however, fail to suggest the use of cords having a lower modulus (higher elongation) in

the overlap portion, as compared to the cords used in the region above the belt layers. Poque, on the other hand, is directed to a similar tire construction comprising an outermost belt reinforcement layer, wherein the shoulder regions are formed with a cord having a smaller modulus, as compared to the cord used in the overlapped portion. Poque further teaches that such a construction improves dimensional stability during high speed running. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use a cord having a smaller modulus in the shoulder portion, as compared to the overlapped portion.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of (a) Reuter '667 or (b) Hirai and Reuter '667, or (c) Reuter '928 and Reuter '618 as applied in claim 1 above and further in view of Nishizawa. As detailed above, each of the combinations disclose a tire construction having a belt reinforcement layer that is directly adjacent the belt layers in an overlapped region and directly adjacent a carcass layer in an overhang region. While the references fail to expressly disclose the cord-to-cord distance (based on topping rubber separation) between reinforcing elements in adjacent layers, the claimed range is consistent with topping rubbers conventionally used in tire constructions. Nishizawa provides one example of a tire construction in which the cord-to-cord distance between cords in adjacent belt layers is between 0.5 mm and 1.3 mm (Column 2, Lines 65+), which is almost identical to the claimed range. One of ordinary skill in the art at the time of the invention would have found it obvious to form the each of the tire combinations with the claimed separation. It is further noted

that while the reference fails to expressly define a distance between a belt layer and a carcass layer, one of ordinary skill in the art at the time of the invention would have recognized the values of Nishizawa as being consistent with (on the order of) the separation of reinforcement elements in adjacent tire layers. Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed separation.

Response to Arguments

8. Applicant's arguments filed July 31, 2008 have been fully considered but they are not persuasive.

Applicant argues that an overlap of "a few mm" does not disclose or suggest a belt reinforcement layer that overhangs a maximum width portion of a belt layer by 15-20 mm. However, as detailed above, one of ordinary skill in the art at the time of the invention would have recognized such language (a few mm) as including embodiments having an overlap of at least 15 millimeters and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed degree of overlap. It is emphasized that the language "a few mm" is relative to the size of the tire. For example, 15 mm would be viewed differently in a tire having a tread width of 200 mm as compared to a tire having a tread width of 600 mm. In this instance, Reuter is broadly directed to a pneumatic tire construction and one of ordinary skill in the art at the time of the invention would have readily appreciated tire constructions in which 15 mm constituted a "few mm" (disclosure of Reuter is relative to the specific tire size).

Applicant further argues that Reuter fails to disclose or suggest an elongation of more than 3% for any amount of stress applied to the cord. The examiner respectfully disagrees. As detailed above, Reuter broadly suggests the use of an aramid cord having a stress of at least 50 N at an elongation of 3%- one of ordinary skill in the art at the time of the invention would have recognized such a disclosure as suggesting an elongation of at least 3.5% at a stress or load of 67 N (would have expected an increase in elongation of at least 0.5% with an approximate 33% increase in stress).

As to Hirai, applicant contends that the reference overhangs the underlying belt layers by more than 10 mm and thus is silent regarding an overhang of 15-20 mm. The examiner respectfully disagrees. In particular, the range of Hirai fully encompasses the claimed range and thus, one of ordinary skill in the art at the time of the invention would have found it obvious to select an overhang between 15 and 20 mm. It is emphasized that the claimed range falls entirely within the range disclosed by Hirai and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed range.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
August 4, 2008